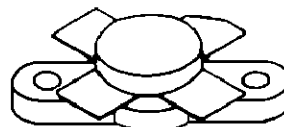


RF & MICROWAVE TRANSISTORS HF SSB APPLICATIONS

- 30 MHz
- 12.5 VOLTS
- COMMON EMITTER
- IMD -32 dB
- GOLD METALLIZATION
- $P_{OUT} = 75\text{ W MIN. WITH } 13\text{ dB GAIN}$



.500 4LFL (M174)
epoxy sealed

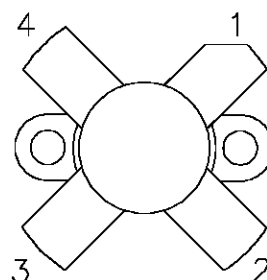
ORDER CODE
SD1405

BRANDING
SD1405

DESCRIPTION

The SD1405 is a 12.5 V Class C epitaxial silicon NPN planar transistor designed primarily for HF communications. This device utilizes diffused emitter resistors to achieve infinite VSWR under rated operating conditions.

PIN CONNECTION



- | | |
|--------------|------------|
| 1. Collector | 3. Base |
| 2. Emitter | 4. Emitter |

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}\text{C}$)

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	36	V
V_{CEO}	Collector-Emitter Voltage	18	V
V_{EBO}	Emitter-Base Voltage	4.0	V
I_C	Device Current	20	A
P_{DISS}	Power Dissipation	270	W
T_J	Junction Temperature	+200	$^{\circ}\text{C}$
T_{STG}	Storage Temperature	- 65 to +150	$^{\circ}\text{C}$

THERMAL DATA

$R_{TH(j-c)}$	Junction-Case Thermal Resistance	0.65	$^{\circ}\text{C/W}$
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SD1405

ELECTRICAL SPECIFICATIONS ($T_{\text{case}} = 25^{\circ}\text{C}$)

STATIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
BV_{CBO}	$I_C = 50 \text{ mA}$ $I_E = 0 \text{ mA}$	36	—	—	V
BV_{CES}	$I_C = 100 \text{ mA}$ $V_{BE} = 0 \text{ V}$	36	—	—	V
BV_{CEO}	$I_C = 100 \text{ mA}$ $I_B = 0 \text{ mA}$	18	—	—	V
BV_{EBO}	$I_E = 10 \text{ mA}$ $I_C = 0 \text{ mA}$	4.0	—	—	V
I_{CES}	$V_{CE} = 15 \text{ V}$ $I_E = 0 \text{ mA}$	—	—	15	mA
h_{FE}	$V_{CE} = 5 \text{ V}$ $I_C = 5 \text{ A}$	20	—	300	—

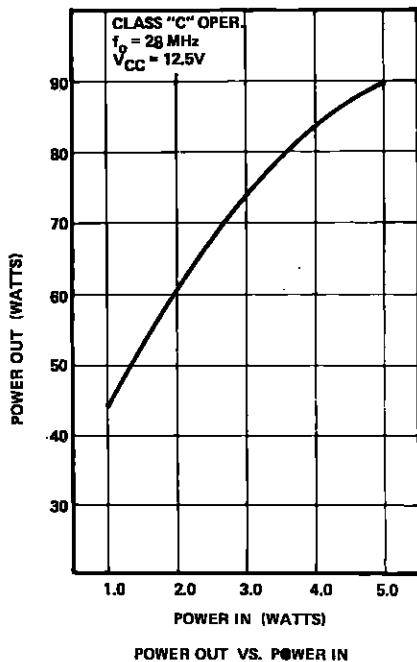
DYNAMIC

Symbol	Test Conditions	Value			Unit
		Min.	Typ.	Max.	
P_{OUT}	$f = 30 \text{ MHz}$ $P_{IN} = 3.8 \text{ W}$ $V_{CE} = 12.5 \text{ V}$	75	—	—	W
G_p	$f = 30 \text{ MHz}$ $P_{IN} = 3.8 \text{ W}$ $V_{CE} = 12.5 \text{ V}$	13	—	—	dB
IMD*	$f = 30 \text{ MHz}$ $V_{CE} = 12.5 \text{ V}$ $I_{CQ} = 100 \text{ mA}$	-32	—	—	dB
C_{OB}	$f = 1 \text{ MHz}$ $V_{CB} = 12 \text{ V}$	—	350	—	pF

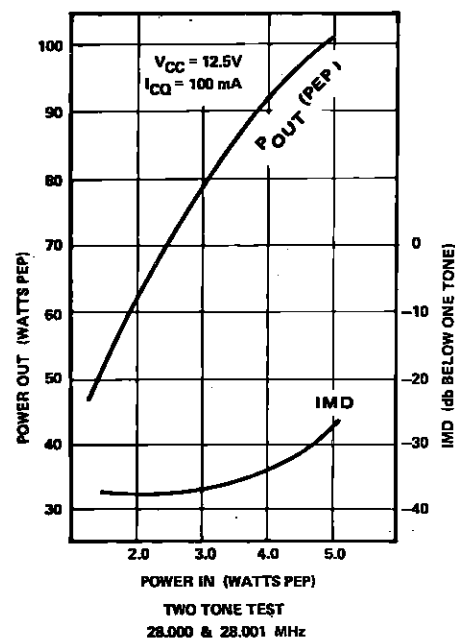
Note: * $P_{OUT} = 60\text{WPEP}$, $f_0 = 30 + 30.001 \text{ MHz}$

TYPICAL PERFORMANCE

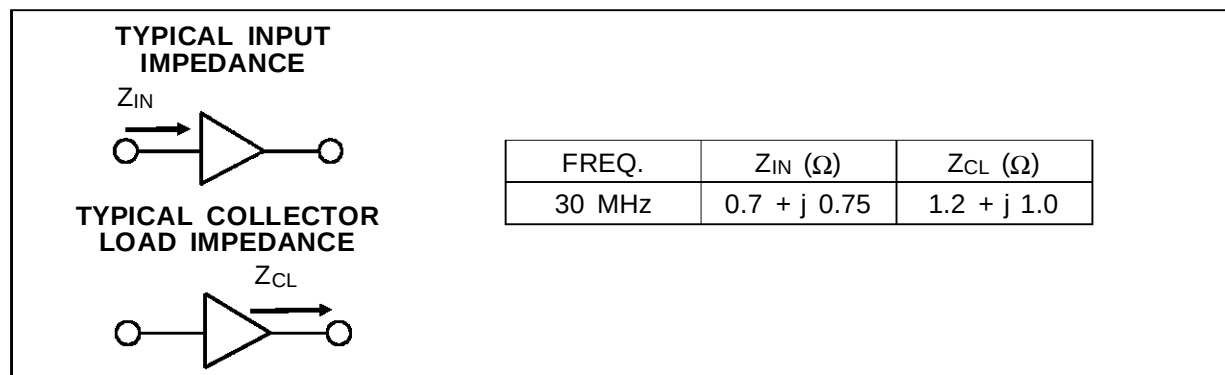
POWER OUTPUT vs POWER INPUT



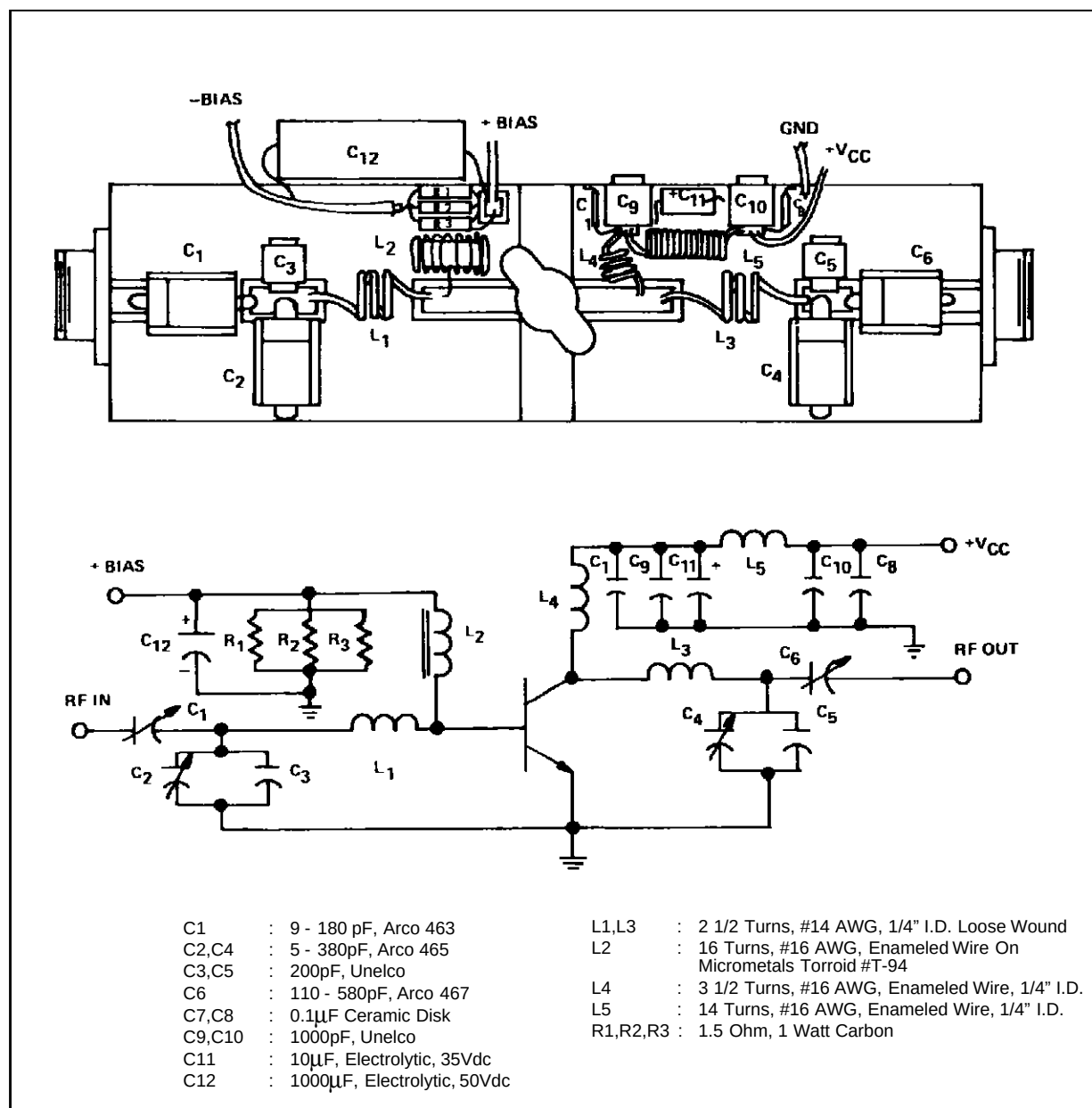
POWER OUTPUT vs POWER INPUT
TWO TONE TEST



IMPEDANCE DATA

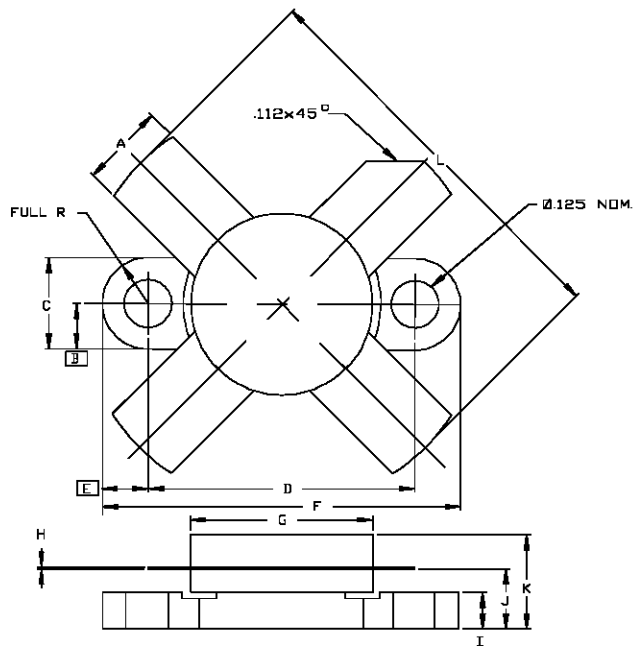


TEST CIRCUIT



PACKAGE MECHANICAL DATA

Ref.: Dwg. No.12-0174



SGS-THOMSON MICROELECTRONICS			CONT'D		
	MINIMUM Inches/mm	MAXIMUM Inches/mm		MINIMUM Inches/mm	MAXIMUM Inches/mm
A	.220/5,59	.230/5,84	K		.280/7,11
B	.125/3,18		L		1.050/26,67
C	.245/6,22	.255/6,48			
D	.720/18,28	.730/18,54			
E	.125/3,18				
F	.970/24,64	.980/24,89			
G	.495/12,57	.505/12,83			
H	.003/0,08	.007/0,18			
I	.090/2,29	.110/2,79			
J	.160/4,06	.175/4,45			

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